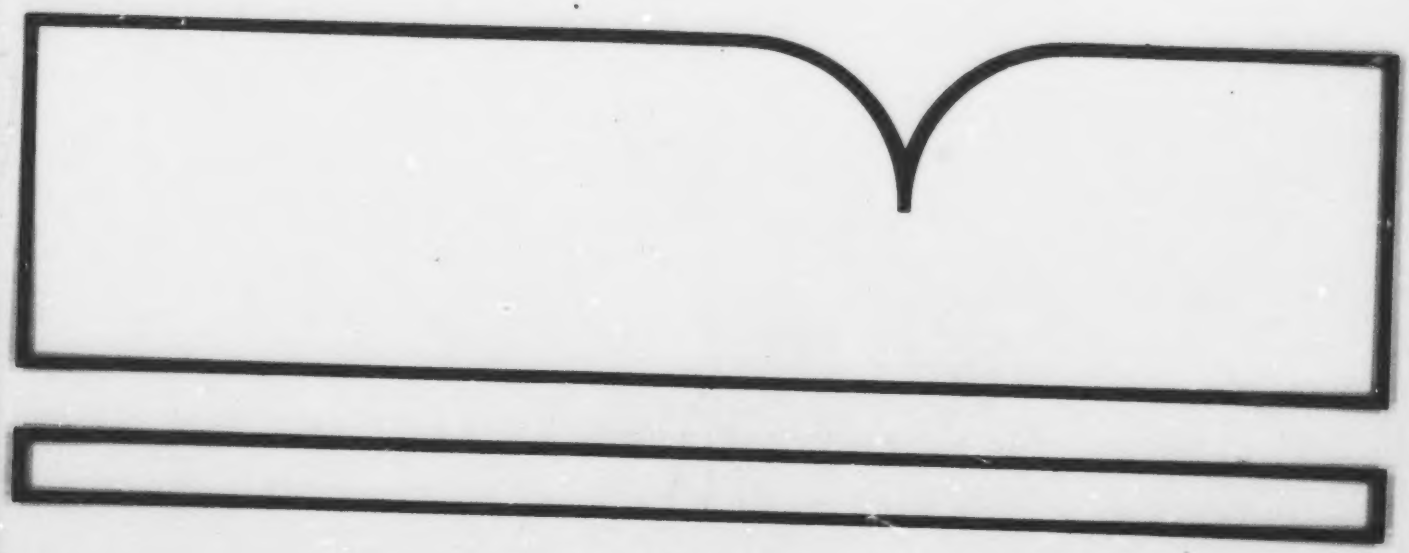
PB85-213759

Superfund Record of Decision (EPA Region 2)
Price Landfill, Egg Harbor City, New Jersey
September 1983

(U.S.) Environmental Protection Agency
Washington, DC

20 Sep 83



U.S. Department of Commerce
National Technical Information Service
NTIS

United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R02-83/010
September 1983

PB85-213759

EPA

Superfund Record of Decision:

Price Landfill, NJ

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1. REPORT NO.	2.	3. RECIPIENT'S ACCESSION NO.
EPA/ROD/RO2-83/010		PB85 213759/AS

4. TITLE AND SUBTITLE	5. REPORT DATE
SUPERFUND RECORD OF DECISION: Price Landfill, NJ	09/20/83 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)	8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Same as box 12.	10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS U. S. Environmental Protection Agency 401 "M" Street, S. W. Washington, D. C. 20460	13. TYPE OF REPORT AND PERIOD COVERED Final ROD Report 14. SPONSORING AGENCY CODE 800/00

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The Price Landfill site is located in Egg Harbor Township, New Jersey. It was originally a sand and gravel excavation operation which closed in 1968. Starting in May 1971, the Price landfilling operation began to accept a combination of both drummed and bulk liquid wastes. Initial listings of wastes consisted of industrial chemicals, sludges, oil, grease, septic tank grease, and sewer wastes. It is estimated that 9.1 million gallons of chemical waste were disposed of at the site.

The cost-effective remedial action for this site includes: replacement and relocation of the Atlantic City Municipal Utilities Authority water supply well field and transmission facilities and additional analysis of plume management, source control and treatment remedies. The capital cost for the selected alternative is estimated to be $5,070,000.
Key Words: Alternative Water Supply, Aquifer Contamination, Plume Migration, Groundwater Contamination, O&M Costs, Plume Management, Source Control, Aquifer Contamination, Supplemental ROD

DIS.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
Record of Decision: Site Name: Price Landfill, NJ Contaminated Media: gw, soil Key Contaminants: oil, grease, sludges, sewer/septic tank wastes, industrial chemicals		

18. DISTRIBUTION STATEMENT	19. SECURITY CLASS (This Report) None	21. NO. OF PAGES 17
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ROD ISSUES ABSTRACT

Site: Price Landfill, New Jersey

Region: II

AA, OSWER
Briefing Date: September 16, 1983

SITE DESCRIPTION

The Price Landfill site is located in Egg Harbor Township, New Jersey. It was originally a sand and gravel excavation operation which closed in 1968. Starting in May 1971, the Price landfilling operation began to accept a combination of both drummed and bulk liquid wastes. Initial listings of wastes consisted of industrial chemicals, sludges, oil, grease, septic tank grease, and sewer wastes. It is estimated that 9.1 million gallons of chemical waste were disposed of at the site.

SELECTED ALTERNATIVE

The cost-effective remedial action for this site includes: replacement and relocation of the Atlantic City Municipal Utilities Authority water supply well field and transmission facilities and additional analysis of plume management, source control and treatment remedies. The capital cost for the selected alternative is estimated to be $5,070,000.

ISSUES AND RESOLUTIONS

1. All proposed remedial action alternatives for this site provided for an alternative water supply (i.e. new production wells) since the migration of a contaminated plume continues to move in the direction of the City's existing well field. Also, additional summertime demand on the water supply system will accelerate the plume migration. The capacity of the alternate water supply system was determined based on the City's total current water consumption without allowance for future growth.

KEY WORDS

- Alternative Water Supply
- Aquifer Contamination
- Plume Migration

ISSUES AND RESOLUTIONS	KEY WORDS
2. Development of an alternative water supply (new well field) was selected over individual well head treatment of contaminated wells for a variety of reasons, including: 1) continued use of existing wells would not reduce the rate of plume migration, and 2) treatment (which had high cost and low reliability) would be necessary for an extended period because source and plume management methods would be unable to retract the plume in less than 10 years.	. Groundwater Contamination . O&M Costs . Plume Management . Source Control
3. The existing well field draws on an aquifer which is proposed for designation as a sole-source aquifer. The state requested a firm commitment from EPA on remedial action to protect the aquifer, including plume management, source control, and treatment of the contaminated aquifer. EPA approved in principle the concept of remedial action to protect the aquifer, but deferred a final decision on the particular alternative pending the completion of additional technical analysis and conceptual design. A supplemental ROD will be submitted upon completion of the state technical analysis and evaluation of plume management and source control techniques.	. Aquifer Contamination . Plume Management . Sole-Source Aquifer . Source Control . Supplemental ROD

Record of Decision
Remedial Alternative Selection

Site: Price Landfill, Egg Harbor Township, New Jersey

Analyses Reviewed:

I have reviewed the following documents which describe the analyses of cost effectiveness of remedial alternatives at the Price Landfill Site and provide relevant background information.

- Evaluation of Long-Term Remedial Action Alternatives, Price Landfill, Camp Dresser and McKee Inc. April 1983.
- Staff Summaries and Recommendations.

Description of Selected Option:

- Abandonment of Atlantic City Municipal Utilities Authority (ACMUA) existing upper and lower Cohansey aquifer water supply wellfield.
- Replacement and relocation of ACMUA water supply wellfield and transmission facilities so as to provide 13.5 MGD capacity.
- In addition to relocation of the wellfield, plume management, source control, and treatment will also be considered. Additional information is necessary to select the remedy to accomplish these objectives. The following studies will be undertaken to develop the Supplemental Record of Decision.

    1. Collect environmental data on the source and evaluate source control remedies
    2. Implement a monitoring program to validate the effectiveness of the model and to provide an early warning system to potentially affected private well users.
    3. Determine the treatability of wastes in the Publicly Owned Treatment Works.

This page has been revised for NTIS - June 11, 1985

Declarations

Consistent with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), and the National Contingency Plan, I have determined that an alternate water supply for the Price Landfill site is a cost-effective remedy, and that it is a key action which is necessary to effectively mitigate and minimize damage to public health, welfare and the environment. I have determined that this action is appropriate when balanced against the need to use Trust Fund money at other sites.

I have determined that plume management, source control, and treatment should be considered and a conceptual design developed to determine the most cost-effective way to manage the plume. A supplemental Record of Decision will be submitted for consideration upon the completion of the State of New Jersey's technical analysis and evaluation of plume management and source control.

Lee M. Thomas
Assistant Administator

Remedial Alternative Selection
Price Landfill Site
Egg Harbor Township, New Jersey

History

The Price Landfill site is located in Egg Harbor Township, New Jersey. It was originally a sand and gravel excavation operation which ceased operations in 1968 when the pit was excavated to within approximately two feet of the existing water table. At the time, the operation had accepted limited amounts of construction wastes to use as fill material in closed pits. In 1969 the facility became a commercial municipal solid waste landfill, accepting larger volumes of wastes.

Starting in May 1971, the Price landfilling operation began to accept a combination of both drummed and bulk liquid waste. Initial listings of wastes consisted of industrial chemicals, sludges, oil, grease, septic tank grease and sewer wastes. Some of the liquid wastes were placed directly in the landfill. This was performed by pouring the wastes into the refuse from an open spigot on a tank truck. The wastes soaked into the refuse and the underlying soils of the site. Many other chemical wastes were buried in 55 gallon drums. Some of these were punctured or opened prior to disposal.

Porous cover material was placed over the filled pits containing both municipal solid waste and chemical wastes. Existing data indicate that ground water contamination from the landfill leachate and chemical dumping has taken place.

It is impossible to determine the total quantities of waste materials discarded at the site. It has been documented that over 4.8 million gallons of hazardous waste were disposed at the site over an eight month period. Based upon the estimated duration of dumping at the site it is estimated that 9.1 million gallons of chemical waste were disposed of at the site.

Prior to the Summer of 1982, as the feasibility study was being prepared, EPA and the State of New Jersey implemented several initial remedial measures at the Atlantic City Municipal Utilities Authority (ACMUA) water treatment plant in the event the contamination plume reached the ACMUA public water supply well field.

Based upon the ongoing monitoring program, the plume has not yet reached the ACMUA water supply wells. A portion of the initial remedial measures taken remain in place to be utilized in the event of a water supply contamination problem prior to implementation of the remedial action.

Community Relacions

On May 4, 1983, at a public meeting in Egg Harbor Township, New Jersey, the findings and recommendations of the CDM feasibility study were presented. The community urged the expeditious implementation of the remedial action and was concerned about the location of the discharge into Absecon Creek. The community was assured that the effluent, if discharged to surface water, would be of high quality and would meet NPDES permit requirements.

Residents near the site were concerned about the safety of home gardening. The State of New Jersey committed to conduct surface soil sampling to address this concern.

During the public comment period the quality of the proposed ACMUA well field was questioned. The Agency and State have investigated this concern and have not found evidence of contamination.

Enforcement - See attached.

Current Status

The site continues to be a source of contaminants, migrating to the east-northeast toward the Atlantic City water supply wellfield. On-going monitoring has not yet detected contamination in the water supply system. Additional demand on the water supply system is anticipated in the Summer of 1984 due to the completion of additional hotels in Atlantic City. This would contribute to the acceleration of contaminant migration, which is anticipated to reach the wellfield by the Summer of 1984.

A feasibility study has been prepared by CDM evaluating long-term alternatives for the site. A ground water model of the area was developed and utilized to simulate and assess the effectiveness of the various alternatives.

Alternatives Screening

The feasibility study initially considered fifteen alternatives. The alternatives were screened on the basis of preliminary modeling results, cost estimates, and an evaluation of technical and institutional considerations.

The ten alternatives remaining were evaluated for the noncost criteria of reliability, feasibility of implementation, operation and maintenance considerations, environmental impact considerations and safety concerns.

When cost and non-cost factors were evaluated, alternatives 13, 14b and 14c (Table 1) were judged to be equally effective in mitigating the threat to public health, welfare, and the environment.

Alternative Water Supply

All three alternatives provide for an alternative water supply consisting of new production wells in the lower Cohansey aquifer north of the city's reservoir and a transmission main extension to the existing system. These wells will produce a combined rate of 13.5 MGD, and will replace all of the existing production wells downgradient of the landfill in the upper and lower Cohansey.

Ground water modeling and sampling indicates that the direction of the plume migration is toward the existing wellfield. The cone of depression from the existing wellfield accelerates the rate of migration. The relocation of the wellfield would substantially reduce the rate of migration in the east-northeast direction and is considered an important part of a cost-effective plume management system. Individual wellhead treatment using air stripping and carbon absorption was considered but was determined to have very high operation and maintainence costs, relatively low reliability, and would not effectively control the plume. The protection of the water supply from the contaminated plume is necessary since the source and plume control measures will be unable to retract the plume in less than ten years and the organic chemical concentrations are in excess of drinking water criteria. Relocation of the water supply to other locations and deeper aquifers was considered but eliminated based upon the risk of salt water intrusion to the Kirkwood Aquifer and the State of New Jersey's concern regarding its over-utilization.

Concerns have been raised during the public comment period about potential water quality problems at the proposed wellfield location. No contamination was detected during a ground water quality survey conducted by ACMUA in 1981. EPA inspections of the site have not determined evidence of hazardous waste disposal or aquifer contamination problems. Additional confirmatory sampling and analysis is proposed for during the design phase under the cooperative agreement. This monitoring is to provide a more comprehensive profile of the water quality in the aquifer to assist in the design of the system. Further steps are being taken to reduce the potential for aquifer contamination, particularly at the nearby Federal Aviation Administration's National Aviation Facilities Experimental Center (NAFEC).

Control of the Source and Plume

The Cohansey aquifer in the vicinity of Prices Pit also are used by the New Jersey Water Company and local residents. The State of New Jersey judges the Cohansey to be a valuable (and threatened) source of drinking water and they are considering designating the Cohansey as a sole source aquifer. The water quality impacts of no action would include increase in the concentration of organic solvents in local surface waters. Alternatives 13, 14b and 14c, were evaluated and found to be comparably effective in protecting water supply uses (other than ACMUA) and restoring the aquifer.

Alternative 13 provides for abatement pumping to be located east of the landfill site for extraction of the plume at a minimum rate of 2 MGD. If possible, based upon treatability tests off-site, treatment at a local POTW will be considered. On-site treatment would consist of iron removal, air stripping and granular activated carbon absorption. This choice will be dependent upon the results of a treatability study to be conducted during design.

The proposed abatement would provide for withdrawal of the existing plume and control of further migration from the source. The 2 MGD abatement pumping rate has been estimated to be the minimum rate for control of the plume. Although one abatement well east of the landfill was evaluated in the model, optimization of the number of wells and the pumping rates will be evaluated during the design phase. Under Alternative 13 pumping is anticipated to be required for a minimum of 30 years based upon the estimated source life. The plume would be remedied when total volatile organic concentrations do not exceed 100ppb. The estimated costs of this alternative is:

Capital Cost = $6,010K (To POTW)
O&M Cost = $909K
Total Present Worth = $14,600K
(30 year period)

Alternative 14b provides for the containment of the source of contamination and extraction of the contaminated plume. The principal advantage of this alternative is that it shortens the period of the plume cleanup but requires the containment of the wastes indefinately. Containment is provided by the use of a slurry wall to surround the site and a small internal ground water pumping system to produce a negative gradient across the side walls and underlying clay. This will provide for leakage toward the source rather than out of the contained area. This alternative also provides for the treatment of the ground water contained within the slurry wall at a rate of 80,000 gpd and pumping

and treatment of the plume external to the slurry wall at a rate of 2 MGD. The period of pumping external to the slurry wall to effectuate plume control was predicted to be 10 to 15 years. Implementation of the ground water cutoff wall is desirable because it confines the source to a smaller area, thus decreasing the time and effort required to clean up the plume. In order to clean up the source and not just to control it, additional treatment of the ground water contained within the slurry wall is necessary.

The estimated costs of Alternative 14b are:

Capital Cost = $10,900K (To POTW)
O&M Cost = $909K (Plume for 15 years)
36K (Source for 30+ years)
Total Present Worth Cost = $18,200K
(30 year period)

Both options provide for cleanup of the contaminant plume, control of the source area and provision of an alternate water supply. Alternative 14b provides an additional positive source control measure with the ground water cut-off wall. Alternative 13 relies solely on plume withdrawal wells to control and clean up the source and to control and withdraw the existing plume.

Alternative 14c would remedy the plume and would eliminate the need to maintain source containment indefinitely. These objectives could be met using several different extraction, treatment and discharge configurations. One probable approach is to extract 2 MGD of the contaminated ground water from within the slurry wall and treat the ground water before reinjection into the containment system. Ground water pumping outside the slurry wall would be discharged to the POTW as in Alternatives 13 and 14b. The advantage of alternative 14c over alternative 13 is that it provides for the completion of on-site remedial action within a shorter time frame and assures the attainment of treatment objectives.

The estimated costs of this alternative is:

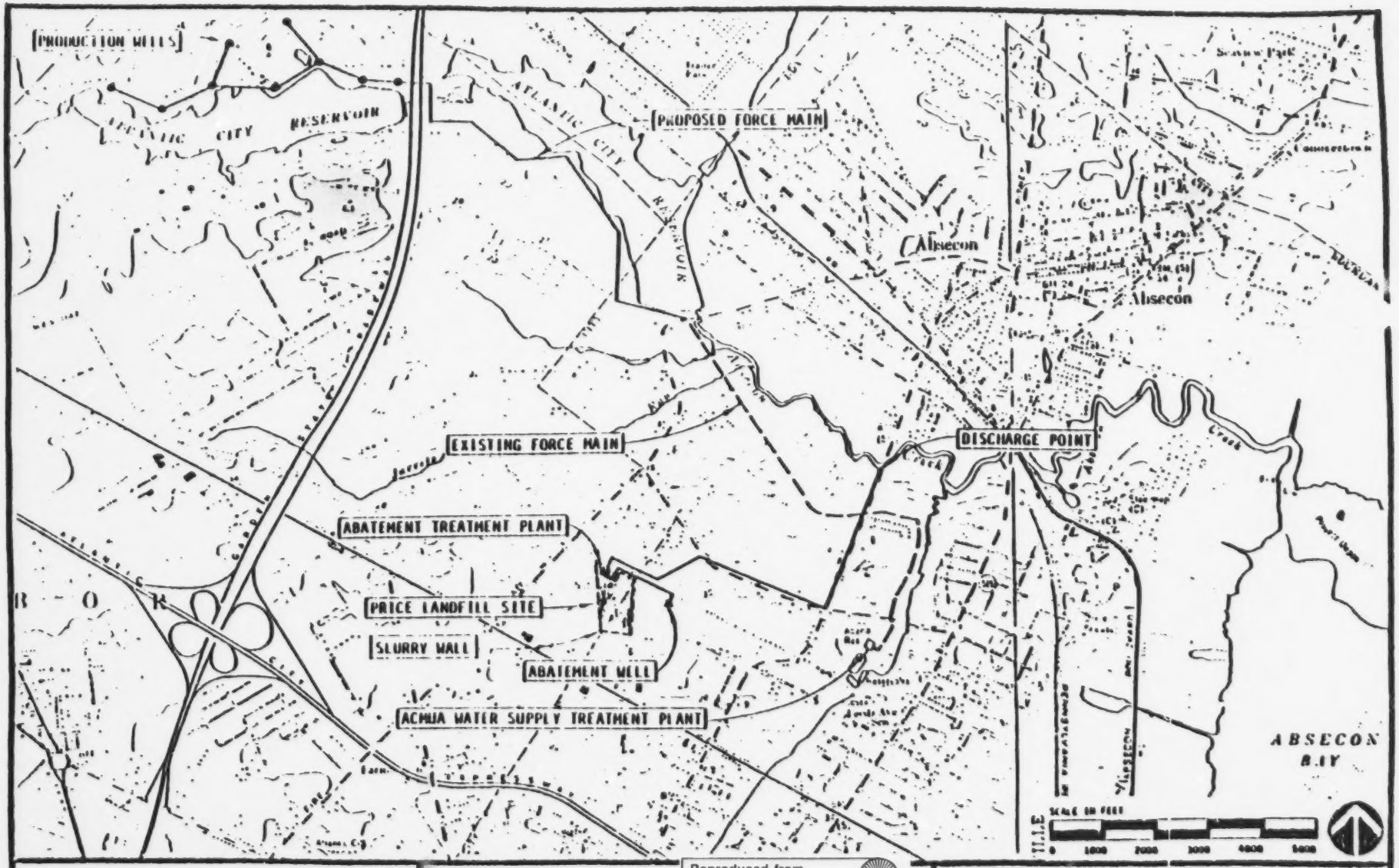
Capital Cost = $14,800K (Plume to POTW &
Source to On-site Treatment)
O&M Cost = $909K (Plume for 15 years)
$947K (Source for 4 years)
Total Present Worth = $24,700K
(30 year period)

Recommendation

Alternative 14c is recommended at this time as the preferred course of action because it shortens the time frame for plume management and provides source cleanup. The relocation of the wellfield will provide a safe source of drinking water for Atlantic City and will reduce the rate of migration of the plume. The containment of the source would further reduce the period of time necessary to treat the plume. Also, the contained source could be treated over a four year period. Remediation of the source could then be a discrete remedial action and funded 90 per cent by CERCLA. The State of New Jersey would be responsible for funding the operation of the plume management system.

Alternative 14c will require further evaluation during the conceptual design phase of the project to determine the most efficient way to obtain the treatment objectives.

The State will collect environmental data on the source and evaluate remedies to control the source. A monitoring program will be conducted to validate the effectiveness of the model and to provide an early warning system to potentially affected private well users. Finally, the State will determine the treatability of wastes in the POTW.



Environmental Information Document

Price Landfill
Remedial Action Alternative

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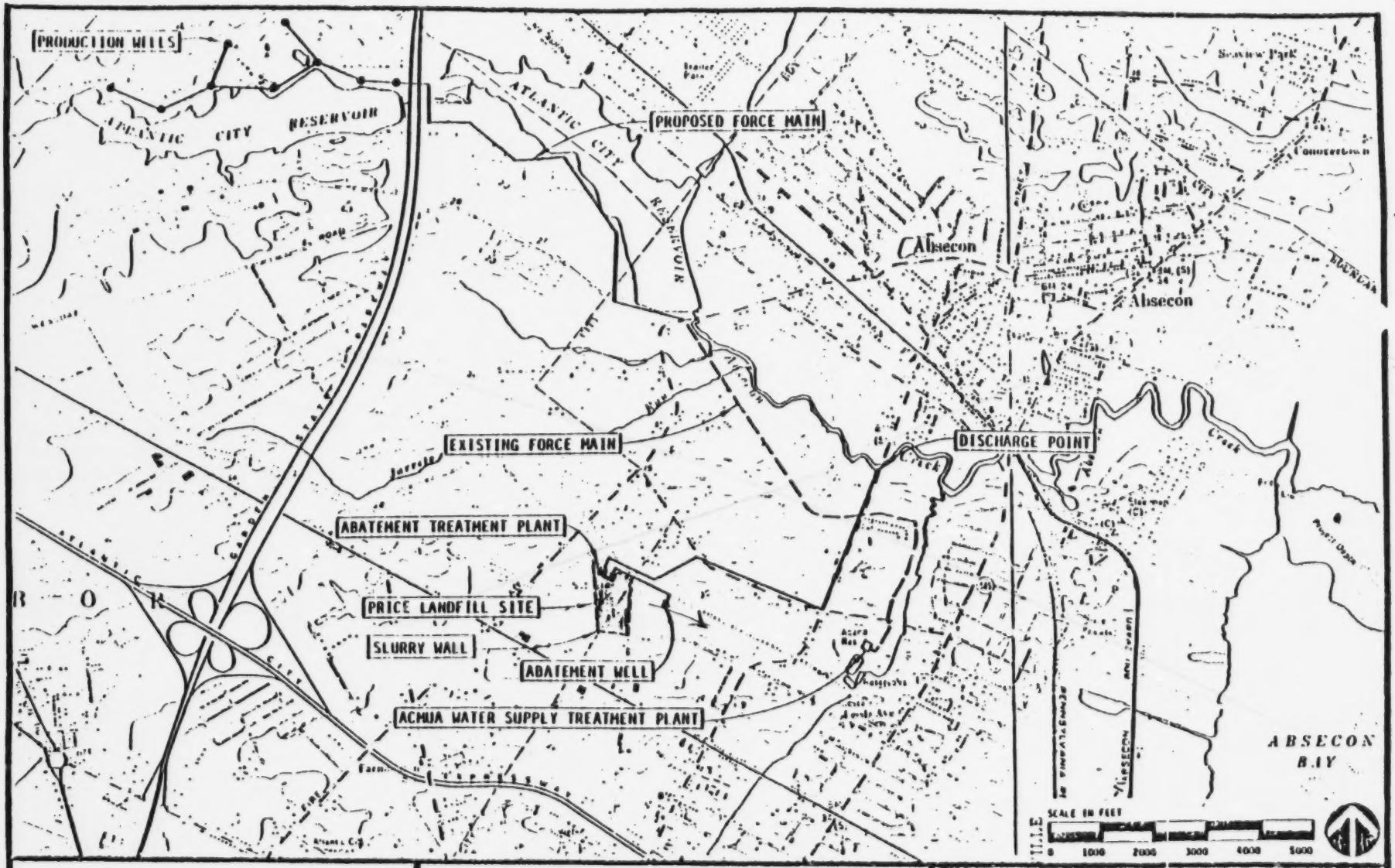
ALTERNATIVE NO. 14b
COHANSEY PRODUCTION WELLS,
2 M.G.D. ABATEMENT PUMPING, SLURRY WALLS

CAMP DRESSER & McKEE INC.
One Center Plaza
Boston, Massachusetts 02108

FIGURE: 3-11

TABLE 1
PRICE LANDFILL, N.J.
EVALUATION OF SELECTED ALTERNATIVES

DESCRIPTION	CAPITAL COST ($K)	ANNUAL O&M ($K)	PERIOD OF REMEDIAL ACTION (YRS)	30 YR PRESENT WORTH ($K) (10% DISCOUNT)	PERFORMANCE CRITERIA (PPB)	REMEDIAL OBJECTIVES	LIFE CYCLE COST @ 0% DISCOUNT
NO Action	0	0	N/A	0	N/A	N/A	0
Relocate 13.5 MGD Wellfield	5070	0	N/A	5070	N/A	Protects Humean Health	5070
Relocate 13.5 MGD Wellfield 2 MGD Plume Abatement Discharging to POTW	6010	909	30	14600	(POTW) 100TVOC 136TOC	Protects Human Health;Reduces Long-term Environmental Impacts (EI)	33280
Relocate 13.5 MGD Wellfield Construct Slurry Wall 2 MGD Plume Abatement Discharging to POTW 0.08 MGD Source Abatement to POTW	10900	909 36	15 (Plume) 30+ (Source)	18200	(POTW) 100TVOC 136TOC	Protects Human Health;limits Spread of Contaminated Plume;Controls Source of Contamination; Reduces Long-Term EI.	25615
Relocate 13.5 MGD Wellfield Construct Slurry Wall 2 MGD Plume Abatement Discharging to POTW 2 MGD Source Abatement Within the Slurry Wall.	14800	909 947	15(Plume) 4 (Source)	24700	(POTW) 100TVOC 136TOC (On-site TMT To GW) ≤ 100TVOC	Protects Human Health;Limits Spread of Contaminated Plume;Cleans up Source of Contamination; Reduces Long-term EI	32223



Environmental Information Document

Price Landfill
Remedial Action Alternative

ALTERNATIVE NO. 14b
COHANSEY PRODUCTION WELLS,
2 M.G.D. ABATEMENT PUMPING, SLURRY WALLS

CAMP D...ESSER & McKEE INC.

One Center Plaza
Boston, Massachusetts 02108

FIGURE: 3-11

PRICE's LANDFILL/ENFORCEMENT SUMMARY

A RCRA §7003 action was filed on December 22, 1980 against nine site owners and operators. On September 21, 1981, the suit was amended to add 35 generators and transporters and §106 and §107 CERCLA counts.

On September 23, 1981, the court denied EPA's motion for injunctive relief under §7003. EPA appealed the decision and lost. In September 1982, the court ordered all parties back to court. The case is currently in discovery.

Notice letters were issued to all 44 parties on January 27, 1982. None of the responding parties volunteered to undertake the necessary response action. Since CDM had already initiated work on the RI/FS Union Carbide offered to conduct an independent peer review of the feasibility study. EPA did not respond.

The court and all defendants were given copies of the CDM study on April 25, 1983. On May 24, 1983, notice letters were issued to all defendants. The letters asked the potentially responsible parties to voluntarily undertake or pay for the design and implementation of the remedial alternative selected in the feasibility study. The defendants claimed that the feasibility study did not select a remedial alternative.

On August 1, 1983, all defendants were notified that EPA Region II recommended implementation of Alternative 14b. Selection of 14b was made by EPA Region II after holding a public hearing. None of the defendants were given notice of the public hearing.

On August 5, 1983, counsel for the Prices notified Lee Thomas that the Prices, through their consultant SMC Martin, will submit a plan for remedial action in 30 to 45 days. The Prices claim that the CDM report did not adequately consider all the cost-effective options.

In an August 10, 1983 letter, counsel for Union Carbide apprised the Judge and the U.S. Attorney that the CDM report was deficient. The deficiencies are documented in the August 10 letter. Union Carbide does not feel the CDM report should be considered final. Through their consultants, Geraghty and Miller, Union Carbide is further defining the scope of additional investigation that they feel is necessary to correct the deficiencies in the CDM report.

9/20/83

Price Landfill, New Jersey
Itemized Funding

Relocate Wellfield

Design	$ 660,000	FY-83 IV
Construction	5,200,000	FY-84 II

Plume Management

Conceptual Design	798,000	FY-83 IV
Design	1,000,000	FY-84 III
Construction	8,500,000	FY-85 I